

CREATURES OF THE OCEAN
DEPTHS.

They Fall to Pieces When the Pressure of Water No Longer Holds Them Together.

The new submarine world now explored and mapped out presents a very different picture from that painted for us by the poets. But a short time has elapsed since the bottom of the ocean was supposed to be the counterpart of the face of the earth above water—with hills and valleys, with precipitous mountains lifting toward the surface and profound gorges sinking to unfathomable depths. The ocean floor is far less diversified than the land.

Here and there, to be sure, islands in mid-ocean are the summits of enormous mountains, rising, more or less abruptly, from a generally level surface, and the sea lying over a narrow, depressed region in the northwestern Pacific reaches its greatest depth. But this is exceptional; in its general character the ocean bottom consists of vast flat or undulating plains. An extraordinary circumstance that has been noticed with interest, and that always creates surprise when first learned, is the entire absence of foreign matter in the deeper part of the ocean's floor.

Of all the vessels lost in mid-ocean; of all the human beings that have been drowned; of all the marine animals that have perished; of all the clay, sand and gravel let fall by dissolving icebergs; of all the various substances drifted from every shore by shifting currents, not a trace remains; but in their place water from 1,000 to 2,500 fathoms in depth covers the uniform deposit of thick, bluish, tenacious slime, called globigerina ooze. A bit of this under a powerful lens is a revelation of beauty not readily forgotten. The ooze is composed almost entirely of the daintiest, most delicately beautiful shells imaginable.

At depths greater than 2,500 fathoms the bottom of the sea consists mainly of products arising from exposure, for almost incalculable periods, to the chemical action of sea water, of pumice and other volcanic matters. This finally results in the formation of the red clay deposits that are considered characteristic of the profoundest depths of the ocean. Carbonate of lime, which in the form of the shells of foraminifera, makes up so large a part of the globigerina ooze, is here almost entirely absent.

Sea water is very nearly a universal solvent, and before any shell, large or small, reaches the bottom of these tremendous abysses it is chemically eaten up, literally dissolved—a result which the enormous pressure of the water must materially hasten. At 1,000 fathoms the weight of the water pressing on all sides of an object immersed to that depth is very nearly one ton to the square inch, or more than one hundred times that sustained at the sea level, and at the greatest depths the pressure is so increased that it would seem nothing could withstand it—in fact, heavy metal cylinders let down with the sounding apparatus are sometimes, on being drawn up again to the surface, found bent and collapsed; strongly made glass vessels which the metal enclosed are shattered into fragments.

In the profoundest abysses of the sea are strange forms of life, that never, save when brought up by the trawl, see the upper light. The work carried on by means of the United States Fish Commission vessel, the Albatross, has established the fact that forms of sea life inhabiting upper waters may descend to about 1,200 feet from the surface, but that below this, to a depth of 300 or 350 fathoms, a barren zone intervenes where marine life seems absent. But still deeper, strange to say, has been discovered an abundant and varied fauna, new to science, living under conditions of tremendous pressure, and poverty of the life-sustaining element of oxygen, that induced an eminent zoologist to say quite recently: "What we know of the greatest ocean depths forbid us to expect to find them inhabited by living organisms." Here, indeed, survive forms of life the like of which no inhabitant of the upper world, not even the sun himself, has looked upon before the dredges of the Challenger, the Albatross, the Blake, and similarly equipped vessels dragged up marine creatures from congenial cold and dark.

It might reasonably be supposed that these denizens of great sea depths would be built more firmly and strongly than surface animals to resist the pressure of the element in which they live, but it is just the contrary. The most universal characteristic of these creatures is the looseness and flabbiness of texture they exhibit. Indeed, they seem to need the excessive pressure of the water about them to keep their parts together, for when they are brought to the surface they are ready to fall to pieces. It is a problem, so strangely are some of them formed, how they can move from place to place; were they not entirely devoid of the disturbing element of wave action they would, to all appearance, be helpless.

Inhabiting these abyssal spaces, as completely cut off from communication with the upper waters as we are from the inhabitants of other planets, we can only vaguely speculate on their habits and judge their manners of life from their somewhat remote analogies to the surface species nearest akin to them. Plant life is entirely absent from their place of abode, and although they doubtless prey upon each other, some original sources of food supply must, of course, be conjectured to exist.

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